- 51. The human TNFα molecule according to claim 50, wherein said TNFα molecule is substantially free from TNFα activity.
- 52. The human TNF α molecule according to claim 50, wherein the substitution has been made in regions of the unmodified TNF α molecule so as to essentially preserve the β -sheet structure of the B and G strands.
- 53. The human TNF α molecule according to claim 50, wherein the substitution has been made in regions of the unmodified TNF α molecule which involves the strands of the front β -sheets or the connecting loops so as to essentially preserve the β -sheet structure of any of the strands of the back β -sheet.
- 54. The human TNF α polecule according to claim 50, wherein the substitution has been made in regions of the unmodified TNF α molecule which involve a segment of the D strand of the back β -sheet.
- 55. The human TNF α molecule according to claim 50, wherein the substitution comprises at least a segment of the H strand of the front β -sheet and of the connecting loop to the I strand.
- 56. The human TNFα molecule according to claim 55, wherein the substitution comprises amino acids 132 to 146.
- 57. The human TNFα molecule according to claim 50, wherein the substitution comprises segments of the H and I strands and the entire connecting loop.
- 58. The human TNFa molecule according to claim 50, wherein the substitution comprises a segment of the D strand, at least a segment of the E strand, and the entire connecting loop.

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- 59. The human TNFα molecule according to claim 58, wherein the substitution comprises amino acids 65 to 79 or 64 to 84.
- 60. The human TNFα molecule according to claim 50, wherein the substitution comprises the entire C' and C strands and a segment of the D strand.
- 61. The human TNFα molecule according to claim 60, wherein the substitution comprises amino acids 40 to 60.
- 62. The human TNF α molecule according to claim 50, wherein the substitution comprises at least a segment of the E strand and of the front β -sheet of one or both of the connecting loops.
- 63. The human TNFα molecule according to claim 62, wherein the substitution comprises amino acids 76 to 90.
- 64. The TNFα according to claim 50, having the amino acid sequence shown in SEQ ID NO:8.
- 65. The TNFα according to claim 50, having the amino acid sequence shown in SEQ ID NO:10.
- 66. The TNFα molecule according to claim 50, having the amino acid sequence shown in SEQ ID NO:4 or SEQ ID NO:16.
- 67. The TNFα according to claim 50, having the amino acid sequence shown in SEQ ID NO:20.
- 68. The TNFα according to claim 60, having the amino acid sequence shown in SEQ ID NO:14.
- 69. Dimers, oligomers, or multimers of the human TNFα molecule according to claim 50.

- 70. The human TNFα molecule according to claim 50 in the form of a fusion protein with an adjuvant molecule.
- 71. The human TNFa molecule according to claim 70, wherein the adjuvant molecule is an immunologically active adjuvant.
- 72. The human TNF molecule according to claim 70, wherein the adjuvant molecule is GM-SCF, HSP70 or interleukin.
- 73. A vaccine against TNFa, comprising an immunogenic amount of one or more human TNFa molecules according to claim 50 in combination with a pharmaceutically acceptable excipient and optionally a pharmaceutically acceptable adjuvant.
- 74. The vaccine according to claim 73, wherein the excipient is for oral or parenteral administration.
- 75. The vaccine according to claim 74, wherein the excipient is for subcutaneous, intramuscular, or intradermal administration.
- 76. The vaccine according to claim 73, wherein the pharmaceutically acceptable adjuvant is aluminum phosphate, aluminum hydroxide, calcium phosphate, muramyl dipeptide, or iscom.--

REMARKS

New claims 50-76 are presented. Claims 50-76 contain the subject matter of canceled claims 1, 2, 4-16, 19, 26, 27, 32, 40-42, and 47, revised to address the §112, ¶2, rejections of record.

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